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Nos. XIII. and XIV.

Old Towns and New Needs

AND

The Town Extension Plan

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OLD TOWNS AND NEW NEEDS: ALSO THE TOWN EXTENSION PLAN: BEING THE WARBURTON LECTURES FOR 1912 DELIVERED BY PAUL WATERHOUSE M.A. AND RAYMOND UNWIN F.R.I.B.A.

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Old Towns and New Needs

Old Towns and New Needs

By Paul Waterhouse, M.A., F.R.I.B.A.

Every art and every method has some object or end. It was Aristotle who said this, and knowing the authorship we claim the dictum to be beyond controversy true.

But what of its converse?

Has every object an art or a method which leads up to it? That is the question which we find before us in our present subject.

"Town-planning" is now an accepted expression. What is its meaning? Can we define it? Still more, I ask, can we go beyond a mere academic definition and give it practical illustration? Can we in fact proceed from our definition to the exposition of universal working formulæ capable of concrete and uniform issues.

In other words while we admit that the expression town-planning at least implies that there are certain human activities which have an object—the creation of perfect towns—can we go the length of stating that those activities and those desires may be formulated into anything resembling a science or a method?

I had well nigh begun my essay with the statement that town-planning is as easily defended by logic as it is defeated by history.

What is town-planning?

From the point of view of clearheaded lecture room reasoning it is the *application to a town of that process of*

ordered forethought which we habitually apply to individual buildings.

Nothing could be neater as a definition, nothing more reasonable as a proposition.

Let us think of it thus :—the social and economic philosopher observes that houses on the whole are successful creations and that towns on the whole are—from his social and economic points of view—failures. In fact he might even say that the more important are the towns the greater are the failures. And why? Pure reason leaps to the answer. "The man" she says "who builds a house, even if he only spends three hundred pounds upon it, takes the precaution of spending three hundred shillings on an architect and a plan ; but the town which is worth a hundred thousand times as much, perhaps a million times as much, is built by random accretion, by accident, by whim, by error.

So the social economic philosopher brings forth town-planning and makes it as clear as daylight that the new-born craft is to be the mother of millennium.

In short, to go back to our bit of Aristotle, if there is an art and method to which the name town-planning can be applied there is no doubt as to the existence of its aim. The aim is indubitable, but does the method, does the craft exist?

Please believe me, I speak in no mockery of town-planning, and if I am about to suggest to you that it is impossible to lay down a general code or science which under that name can be said to have universal application, it is not because I ignore the need of such a science but

because I have some facts to put before you which show how impossible it is to secure that uniformity of circumstance upon which alone a science can be built.

There are three considerations which I wish to present, considerations which have an irresistible influence upon the subject we have met to consider.

(1). One is that towns, whether they receive regulated control or not, take and continue their disposition in accordance with certain influences which cannot be wholly checked by any laws or for that matter by any by-laws.

(2). Another is that for obvious reasons a town of size and importance cannot be planned as such from its birth.

(3). The third, and I don't mean to suggest that these three are all the disturbing factors I might catalogue, is that towns however perfect are always changing the units of their formation.

Each of these considerations in itself is so complex that I purposely refrain from attempting to give them names.

You will have gathered from my title, and from what I have already said, that I am abstaining almost entirely from the study of town-planning in its idealist aspect, the delightful and unusual pastime of pegging out a whole bran new city on a houseless thousand acre field. (This has been done, of course, by Romulus and other Romans, by Alexander and by American pioneers).

I am also keeping away from the subject of suburb plotting around existing towns, a fascinating theme on which you will hear Mr. Unwin, a specialist—and, what is more—an expert.

May I take my last difficulty first? A traveller, he was an American, was asked what he thought of Rome. "I guess," he answered, "it'll be a nice place when it is finished." This was a trans-Atlantic way of restating the old saying that Rome wasn't built in a day. It certainly was not. Rome had been Rome-building for 25 centuries when this good man made his observation, and it is probable that she will be still hard at work with bricks and mortar (or ferro-concrete) when this poor planet utters the first rumblings of dissolution.

Apart from all questions of growth of population, of traffic needs, and of city improvements, there goes on in every town a ceaseless substitution of new for old, which is so persistent that ordinary humanity does not even notice it. Very few folk observe the fact that the show streets of their favourite town are perpetually unfinished. If they do observe it at all, they will assure you that the prevailing scaffold-poles are merely temporary, and that everything will be straight and tidy by next season. They would honestly mean what they say, but you and I know that the time of tidiness will never come unless it is brought about by an age of universal poverty and apathy. So long as there is health there is wealth; so long as there is wealth there is change. And if things beautiful and old are spared who should complain? Certainly not an architect.

So here, at least, is one factor—perpetual flux—that defeats the theoretic town-planner.

And here is another, coming under my first heading, that, whatever planners may plan, there are certain laws

differently operating in different localities which automatically affect city growth.

I am going, for purposes of illustration, occasionally to take London as an example. In so doing, I do not forget that I am lecturing in Manchester, a city with problems of her own and a history of her own, nor do I forget that I was born here, but I find several points which make London the most useful field for the illustration of the historical phenomena which we desire to study. It is, in the first place, a town of which most Englishmen know something; it is, with few exceptions, the most interesting town in the world, and as regards the problem of expansion in area and in population it has no rivals on this globe. Lastly, it is easier to secure facts (as to the successive alterations of plan) from London than from other English towns. London, poor thing, is very far from the ideals of the Psalmist. It may be a fair place, and the joy of the whole earth, but it is certainly not built as a city that is at unity in itself.

Any plan of London, selected from any period since plans were made will illustrate the rudimentary element of all city growth. Every town, however small its beginnings, and however large its developments is the *subject of its own servants*, I mean its roads.

In every kingdom certain towns establish themselves early in history as road centres. They may have sprung up at the junction of cross roads already existing as routes to other more important places—or they may as in the case of London be the object, the main and primary object, to which the roads tend.

At all events there came a time, early in our civilization, when London was a comparatively small centre of a comparatively large road radiation. That centre was no doubt the subject of a certain amount of deliberate town-planning; the mere fact of fortification which implies, *inter alia*, concentration within a fixed boundary, must have produced a measure of thoughtful disposition within the boundaries. But even inside the city walls there probably began a demonstration of the subjection to roads, which is one of the strongest factors that defy the economic occupation of land. Every house must have access, and consequently the houses are so built as to line the roads.

As soon as this process is continued outside any town there immediately arises with it a conspicuous hindrance to the profitable distribution of population on the soil.

Any suburban plan will illustrate my meaning. Wedge-shaped spaces of unbuilt area are left between the roads, and access to these spaces for further development is barred by the continuity of the dwellings or shops which line the roads. This difficulty is one which a town-planner with a clean sheet of paper to work on would easily foresee and overcome—but historically it is met by expedients of a makeshift nature, with various uncomfortable results. I should take up too much of your time if I were to describe fully the unsatisfactory consequences of this perfectly natural tendency. I need only mention two. One is that the later development of the land in the wedges leads to its occupation being of a different social character from that on the main roads, either better or meaner, the other that

the subsequent widening of the roads, when required for the increased traffic is rendered costly or impossible.

Perhaps the most important considerations which I have to offer you are those which come under my second class. With the best intentions in the world no town-planner could possibly plan a large town as such. Certainly an expert might as an academic study take the needs and the opportunities of our present London and replan the town on its present site. He might say "here is a bit of ground measuring ten miles each way with certain natural features —the Thames for example—that must not be disturbed, which piece of ground is occupied by a million houses very badly arranged. I will rearrange them." He sets to work on paper, and let us suppose that on the night when his plans are finished there comes an earthquake and a fire.

In the morning all is ready for a start—the expert's new city can be begun. Happily there is no stint of money and no opposition, for his plan is acclaimed by all surviving London as ideal.

What then? It gets built, and we come back to look at it in two centuries' time. It is perfect then? Probably not, and I will lay before you a rather curious instance in proof.

In 1666 the heart of London was destroyed. The moment had come; and the man came too. Sir Christopher Wren was a combination of artist and scientist without equal since Leonardo da Vinci. He made his ideal plan and as it happened it was never acted upon. But it might have been. And what would have been the result? Here is an illustra-

tion of Wren's plan, placed as it might actually be at the present time in present London. (Fig. 1.)

What do we notice in regard to it? First that in spite of the admirable widening of the roads they are not as wide as we to-day should consider necessary; secondly that Wren's notions of the central requirements of London are inadequate; thirdly and this is most strange of all, we see that Wren had not the slightest fore-shadowing in his mind of the possibility that any bridge beside London Bridge might some day be necessary. We could hardly expect him to foretell railways and certainly the horrors of Cannon Street Station and Cannon Street Bridge could never have found a place in such a beauty loving mind, but one might have expected him at least to see the possibility of a reduplication of such a bridge as already existed. As it happens there are four additional bridges all affecting the area which Wren re-planned; and the Fleet ditch which Wren regarded as a fixed feature in the landscape has been submerged past all discovery except by the sewer men. Moreover Wren was unconscious of the future growth of London and imagined a concentration of functions which subsequent history has proved impossible.

We may understand from this illustration that even a supreme mind with a mass of data to work upon cannot form a scheme for a city which will hold its own as long as the buildings he erects endure. The very stones that Wren handled are smiling down on the accumulated facts which would have impaired his scheme in eight generations.

No one knows to what size a city will grow. No one

FIG. 1.—Wren's plan for rebuilding the City of London after the fire, placed among the present surroundings of the City.

knows in what direction it will grow, and no one knows what developments will take place in methods of transit. Here are three obscurations casting impenetrable shadow on the clearest of logical forecasts.

And now in order that we may get these disheartening considerations out of the way I will deal with some further difficulties which I may put roughly and generally into my last category.

I said that towns, however perfect, change the units of of their formation. The constant flux, or change of units applies not merely to the supplanting of old buildings by new, but to the rise, fall, change and development of individual districts under the influence of absorption and of the readjustment of social and commercial equilibrium. The simplest illustration of this is again found in London.

In a nice old book on our metropolis, I often read the account given of the habits of that manager of the Bank of England who held office in the lifetime of my great grandfather. Compelled by the duties of his post to sleep always at the Bank, this manager used nevertheless to drive out to dinner so that he might enjoy the country air of his home at—Islington. Three generations ago then Islington was an isolated village becoming a country residence for city men, its next stage was to become a suburb, from that it rapidly became part of outer London, now it is indistinguishable from London itself, but has undergone, like other absorbed townships a civic revulsion towards independence by promotion to Borough-hood. This process has gone on all round London, and the decentralisation produced by the

elevation of the old Vestries into Boroughs, is a tribute to the enormity of the process of absorption in spite of the fact that this decentralising is counteracted and neutralised by the over-control of the County Council.

The fate of the shop centres is another symptom worth notice. Villages in process of absorption naturally grew. In fact, it was their growth that assisted the absorption by joining the ever increasing village group to the town group. The increased population made increased trade, and the village of Hackney for example turned its High Street into a bustling thoroughfare of shops. Though brought into closer touch with London it nevertheless developed its own trade resources and became a trade centre. But this centre soon had further centres outside it and became more than a mere passage or thoroughfare. For a time the transit of more passengers past the shops increased their notoriety and their trade, until the increasing speed of locomotion and the improvement of large shopping opportunities in central London began in recent days to withdraw custom from the Hackney centre.

Here we see a series of fairly rapid changes of economic equilibrium producing shifts of trade centre too swift and too uncertain to allow any established groundwork for a town-planner's schemes.

Parallel with these economic changes is a subtle, social and architectural change equally baffling to scientific study.

When land becomes vacant near enough to the town (by the town's advances) to be available for suburban building, it is rapidly occupied by builders and filled with houses of

the type that lets most readily at the time. As further and more outward land is occupied, the outer houses are erected in a style and with accommodation suited to still newer and relatively more luxurious needs, and they consequently (thanks to our improving means of transit) supersede the more inward suburb, which thereupon sinks to a lower value, until the increasing needs of the centre again raise its character and supplant its buildings possibly by substituting commercial for domestic houses.

There is thus, even in residential property, a fluctuation of character and value which, unless a town-planner is able to prophesy future rates of increase in population and trade, will certainly baffle that town-planner's calculations.

All these foregoing considerations seem to point to the distressing conclusion that as far as large and established towns are concerned town-planning projects are of no value. But I have no wish to sum up in so pessimistic a vein. It may be perfectly true that if Manchester were all destroyed to-night and at once rebuilt on new lines the new city might prove vastly inconvenient and even insanitary to our grandchildren's grandchildren. But we may relieve our minds with the thought that the entire rebuilding of Manchester or of London is as unlikely as it is undesirable. A physician is not, thank heaven, called upon to invent a new man, but he does keep before his mind's eye a vision of what he believes to be the perfect man and is able, for a fee, to do a good deal of useful work in patching up imperfect humanity.

The town-planner's work in old towns is similarly a

remedial rather than a creative work. It may be surgical at times. He may have to ply the knife, and he may now and then cut away more than he should, but when all is said there is certainly a field for this healing and corrective work.

And these academic exercises, even the vision of a replanned London are not really without their uses.

The logical result of the considerations we have just been entertaining is undoubtedly that, except for the necessary building of new buildings which should wherever possible be confined to the replacing of old structures that are of no artistic or historic value, it would be better in the case of all old towns to do nothing whatever in the way of innovation *except under dire necessity.* And that reservation—the possibility of dire necessity—is really the key to the whole situation.

Town-planning is a rash game at best, but it is a game that *must* be played because desperate diseases require desperate remedies.

From one cause or another, and most of these causes are reducible ultimately to increase of population and to commercial prosperity, crises occur in the lives of cities which require to be met by operation on the city's corpus. I give here as an important instance the urgent facts set forth in the annual reports of the Traffic Branch of the Board of Trade. In fact there come times when it is obvious that something must be done and it is quite clear that however imperfect may be the science of town-planning and however liable it may be to fallibility in its methods of forecasting

the future, that science must be called in to guide the measures for which necessity is clamorous. This is a self-evident truth, but up to the present it has seldom been evident to the corporations who control the destinies of our towns.

Every city should have some professional, I would sooner say some artistic guardian of its architectural interests. I use the word architectural advisedly and apply it consciously to a wider field than is generally allowed to it. A city has a corporate architecture, a cumulative architecture, no less important than the architecture of its component houses though hitherto that architecture has been disregarded, the only tribute to its very existence being the coinage of the word town-planning. The nobler word town architecture is as yet not come into use. A city is or should be *a work of art*. The fact that it has been built at different dates and by different minds with different aims and even different ideas of beauty is no bar to its qualification to be so considered. We do not on such grounds bar the claim of a cathedral reared in successive ages; and so when supreme difficulties of traffic, or supreme ugliness, or obvious inconvenience, or manifest social changes call imperatively for some remodelling in the city's features the aid should be sought of some artist who has made a study of the science of town-planning. It is clear, is it not, that no real work of art can be effected, either by a body of laymen elected mainly on political or economic grounds, or by an expert whose training and skill are directed to problems of a purely engineering nature. Even a corporation whose every alderman was a Michel Angelo or a Raphael would

realize that works of art are produced by individuals rather than by committees.

And what will this artist of plan do when he is called in?

I feel sure that his right course if summoned to prescribe for a city's sickness would be to make up his mind first of all what the ideal disposition of that city would be if planned anew on the same site. That ideal plan if effected might, as I have said, prove in half-a-dozen generations to be in some respects deficient; but still it is the best aim that can be looked to and it is obviously unwise to undertake partial alteration in a city's plan without an eye to general results.

If a man of comprehensive ability and artistic skill sets himself to replan an existing city, reserving as fixed data the main, natural characteristics, such as rivers and hills, and all old buildings of architectural worth, as well as main roads of egress, he will probably be astonished to find how closely the existing conditions and disposition lend themselves to the possibility of readjustment to fit in with his model scheme, and what very simple changes will suffice to bring the real within reach of the ideal.

In any case, that exercise of wit, the replanning, will have served to open his eyes to a hundred points which call for his attention in the effort to work a particular improvement.

It is impossible and undesirable that I should attempt to review the whole field of possible city improvements called for by the most urgent needs of modern towns, but I shall venture to offer a few observations on two of the most

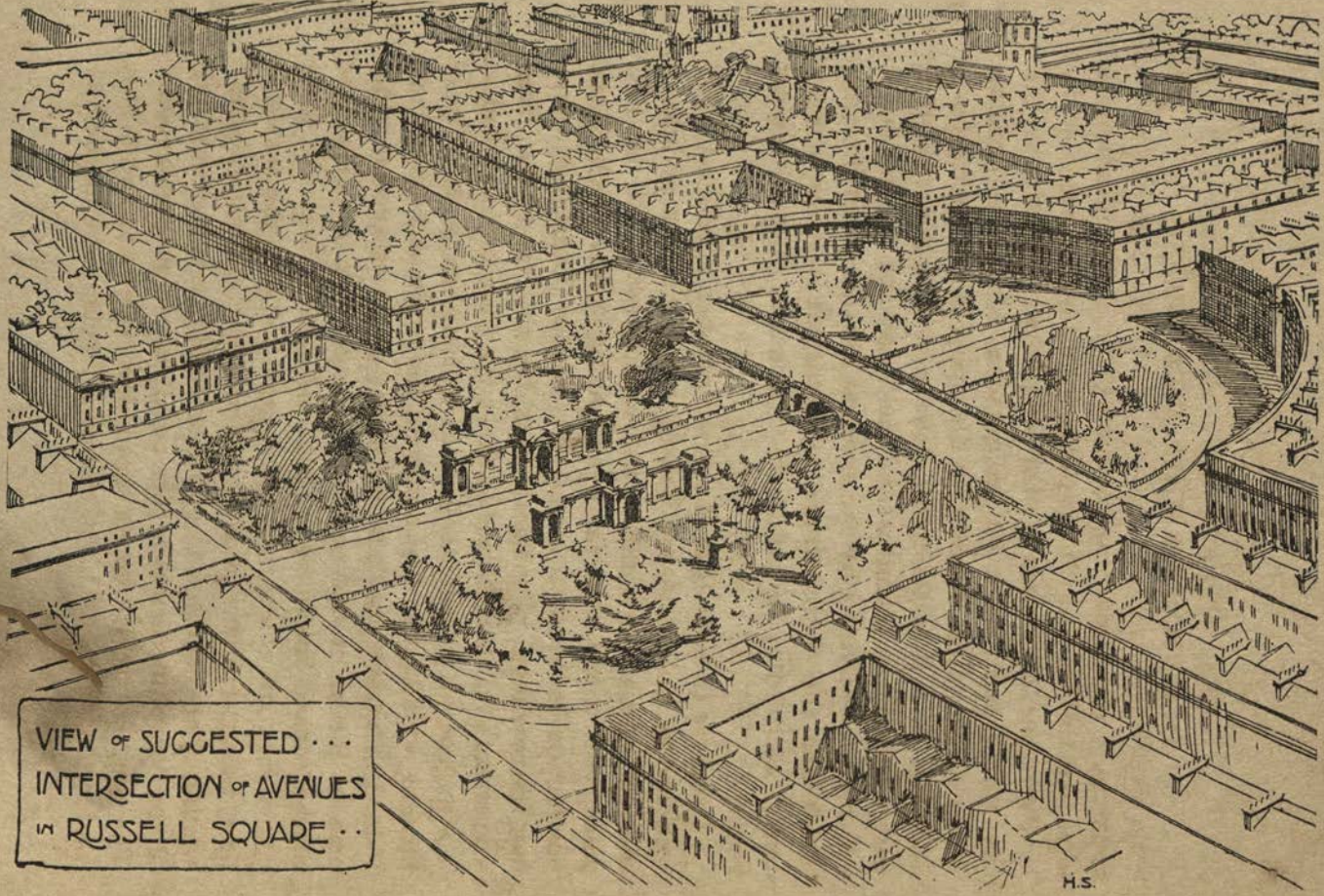

FIG. 2.—An "over-and-under" or viaduct crossing. A proposed treatment for the intersection of the main avenues advocated by the Royal Commission on London Traffic.

apparent. (1) Street improvement for the facilitation of increased traffic, and (2) the provision of open spaces.

Overcrowded streets are the commonest affliction of the city which has grown big in growing old. The remedy which occurs most readily to the mind of a corporation is *widening*, and it is generally to the widening process that they apply their attentions. It is a slow job at best, for it can only be effected by the gradual diminution of the sites which line the thoroughfare affected. It is always very costly, and it may be ruthlessly destructive of architectural beauty.

I venture to state that the town-planner consulted by a corporation will always, before sanctioning a widening, consider one or two important alternatives. In the first place, it is a fact that there are many streets in which the obstruction is brought about by causes altogether other than narrowness. Constantly it is due to cross traffic from side streets. In some cases, where they are of importance, it will generally be better boldly to face the possibility of forming a viaduct so that one road may pass over the other. Indeed there are places in our larger towns where the wideness of the main thoroughfare is a positive inducement to blocks caused solely by the meeting at right angles of large concourses of vehicles. The congestion and the waste of time, brought about at large centres of cross-traffic by the waiting of east and west for north and south and the returning of the compliment which goes on all day long, is enormous. The simplest device for its cure is the "over-and-under" or viaduct crossing. This of course can seldom be applied as

a direct remedy because the offending streets are naturally at the point of their offending on an equal level and it becomes necessary either to substitute for one of the offenders another line of route, the levels of which favour the introduction of a viaduct, or to arrange that the crossing shall take place in some position where space is available for the necessary rise and fall of the two roads. As an example I offer an illustration of a scheme of my own for forming an over-and-under crossing for extensive traffic in Russell Square, London. (Fig. 2.)

Another device, hitherto but little tried, if at all, is a circus on what may be called the "merry-go-round" principle —otherwise the "gyratory" crossing. The roads, whether four cross roads or junctions of traffic with more radiations than four, meet at a circus like Oxford Circus, but with these important differences—first that vehicles are compelled to *circulate* in the circus—not to dash straight across it, and second, that in furtherance of this system the centre of the circus instead of being roadway is filled in, either by a pavement with fountain and trees or by a garden space or again with a circular block of buildings. (Fig. 3.)

I observed that the town-planner when called in consultation would before sanctioning a widening consider whether some other device would not really meet the difficulty better. I might have put the matter in another way by saying that the first duty of a town-planner, when confronted with a problem, is not to see how the proposed remedy can best be applied and devised, but to proceed to the diagnosis of the problem itself.

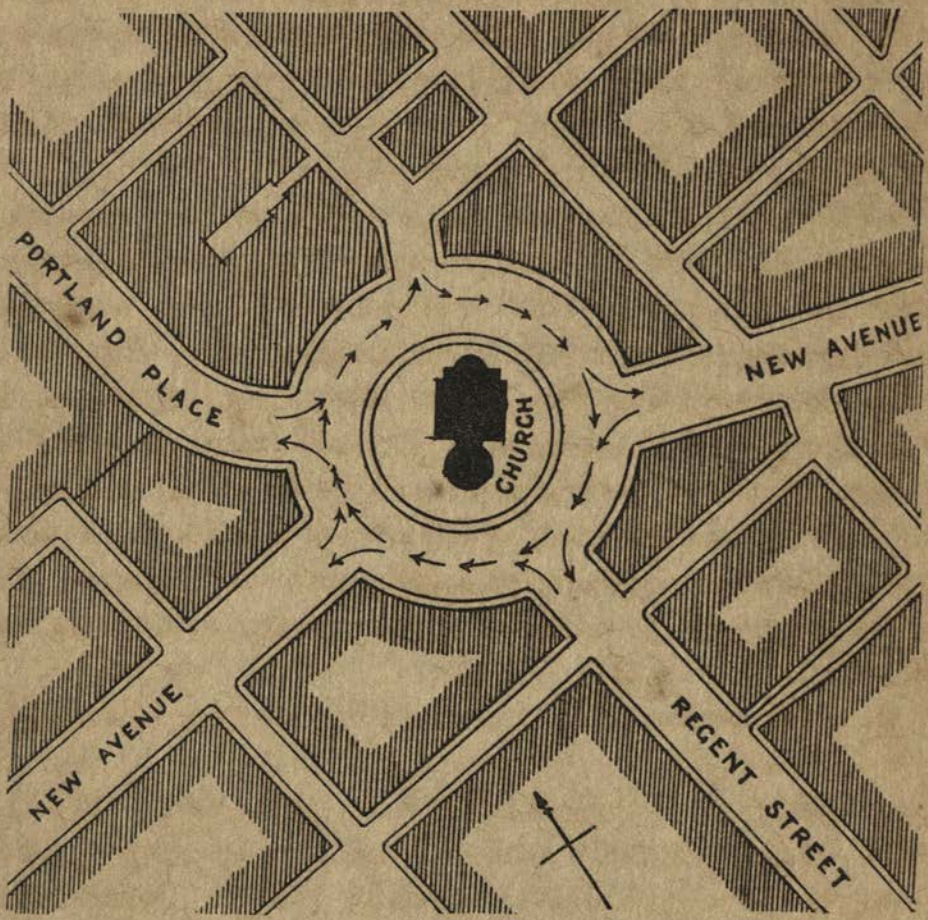

FIG. 3.—A suggested gyratory crossing round All Souls' Church, Langham Place, London, in connection with one of the avenues proposed by the London Traffic Commission. The arrows indicate the course of the traffic.

In nine cases out of ten the guardians of our cities and even their advisers (when there are any) spring to the medicine before they have correctly named the disease. They are like doctors who, satisfied with a patient's enunciation of some local symptom, are content to deal with that symptom, instead of making a searching examination of the invalid's whole system.

There are, for example, many cases of suggested street widening which should not be met by any dealings with the street in question at all, but rather by an entire relief of that street by the substitution of a parallel route. Particularly is this the case where a street, which has been the high street of an old suburban village, finds itself absorbed into a town. The ruthless widening of such a highway results as a rule, in much wanton destruction of old-world beauty and in a damage to property and consequent expense, which the adoption of a parallel route would altogether have avoided.

Town-planners are too ready to assume as data, facts which should not be so assumed. Indeed it would be a good rule in the logic of the town-planner to be always ready to suspect his major premiss, and in particular to increase his suspicion when the major premiss in question is one of long standing and of venerable antiquity. London is full of such ancient superstitions which would vanish before my proposed system of studying London's problem in the light of an ideal whole.

Wren's mistake, as we have seen, was that of assuming too readily that London Bridge was the only necessary

crossing of the Thames, and of treating the reconstruction of the city as all that was necessary. It was many years before the further bridges came and even now we have never got used to the sufficiently obvious fact that Southwark and the Borough are very intimate and very near portions of our town. The sinuosities of the Thames are constantly forgotten, and it is a perfect marvel to me that hardly anyone recognises the importance of the fact that in crossing Westminster Bridge, though we thereby approach the south side of the Thames, we are travelling due east, so that a continuation of the line of the bridge would produce a road capable of leading almost direct from Westminster to the city. It is now an old hope of my own that a road may be constructed on the Surrey side (preferably as a viaduct crossing over other main roads) which shall lead easily and with great dignity from the residential quarters of the west to the heart of the banking centre, thus relieving the great east and west pressure at much less expense than would attend the construction of any relief road on the north side of the Thames.

In this connection I may draw attention to another prime essential in the formation of new or enlarged thoroughfares in old towns. The Traffic Commission of 1905 suggested among other things two new main avenues, one east and west, the other north and south. But they laid them down, tentatively, without any regard to the value and beauty of existing ancient buildings. A plan made by me in 1906 shows how these proposed routes could have been modified in such a way as to destroy no buildings of architectural

value, and, what is more, to insult no such buildings by approaching or passing them at unsightly angles or without due regard to alignment or to view.

Before passing to the subject of open spaces, I have a few words to say on the phenomenon of road radiation. In a city well planned from the start, such as certain Roman built towns, the radiation does not penetrate within the main enceinte of the town, but is confined to the outlying quarters. The town of Winchester, will, for example, illustrate this.

In a very large town it is of course important to secure a certain possibility of progressing diagonally, otherwise the journey from place to place may unduly resemble a knight's move on the chess-board, but if I were planning anew a town of fair size, I would certainly retain a strict parallelogram formation for its central area and start the radiation at a quarter of a mile or half a mile from the focus. Moreover, it will be realised that in a town of the size of Manchester for example, the main, incoming roads carry traffic of a density which increases in ratio to their approach to the centre. Obviously, therefore, it would be theoretically desirable that every such road of ingress should on or near its entrance to the town be bifurcated so that its density of traffic should be approximately halved.

I have prepared and now submit a rather strange-looking plan which illustrates my meaning, and you will see that under favourable conditions the bifurcation might be so planned as to work in very effectively with a gridiron central formation in which the traffic difficulties might be further

eased by the adoption of viaduct crossings. Such a system would lead to an automatic *distribution* of traffic which would go far to reduce the troubles of congestion. (Fig. 4.)

My special object in mentioning this subject here is that Manchester offers a conspicuously successful example of the

PLAN OF A CITY ON A RIVER APPROACHED BY EIGHT MAIN ROADS. EACH ROAD IS BIFURCATED BEFORE ENTERING THE CENTRE OF THE TOWN.

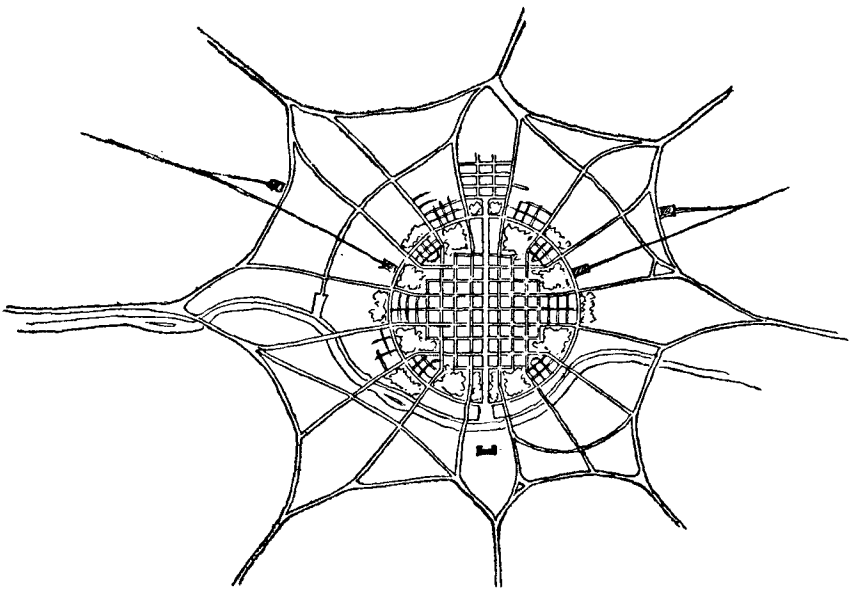

FIG. 4.

bifurcation principle. Nearly all its main roads of ingress have relief roads parallel to them.

I have had no special opportunities of making a historical study of Manchester's growth so that I am unable to tell you, what very likely my audience can tell me, how this has come about. It is quite clear, however, that Manchester

owes what I may call its open formation first to the irregularity of its seventeenth century nucleus, which in its turn is partly due to the river, and secondly to a very marked element of dignity in the schemes of those who in the eighteenth century controlled the town's rapid development.

The map of 1650 shows an irregular village, approached on the right bank of the Irwell by the roads from Broughton and Preston, which united at the bridge near the collegiate church, and on the other bank by the Altrincham or Chester Road (Deansgate) and those from Rochdale, Oldham, Ashton and London. Clearly, at that date, development was taking the usual historic course of lining the road sides and leaving country spaces between them, for there were gardens between Deansgate and the river and hedge-rows between Shudehill and Millgate. But the advance of a hundred and forty years shows a remarkable change of tactics. The plan of 1793 assures us that so far from continuing the wasteful process of following the main roads with houses and leaving the interstices to the care of themselves, the citizens of Manchester had boldly grasped the necessities of their case and had set to work so to lay out their land as to afford very complete and general occupation as well as a ready intercommunication.

I now come to the subject of open spaces, and on this topic have two things to say. First, and briefly, as to open spaces in the central parts of towns. There can be no question as to the value of these—from the æsthetic and the hygienic point of view. Most corporations appreciate the

importance of them, and much has been done towards securing such islands of rural relief, both by private generosity and by corporate energy. In fact, the point need not be pressed here—but there is another aspect of the open-space problem which I think deserves a little special thought.

Have you ever realised that some foreign towns possess an element of beauty almost unknown in England, and have you ever discovered what that element is? I allude to the fact that here and there one comes across an ancient township in which the lack of wealth or enterprise, or the absence of population-pressure has made it unnecessary for the transition between town and country to be marked by a suburb of graduated ugliness.

I know one town in England where the shops suddenly end and the country suddenly begins. One sees many such abroad. But in England what do we generally find? By degrees, as you leave the town you discover that the good, gay shops give way to meaner shops mixed with mean residences. These give way to residences without shops, less mean but more dreary. Then follows a tract of desecrated country waiting to be eaten up in building lots, then a derelict farm, then a hideous market garden, next villas, beyond them a village, once rural, now aping town manners, beyond it, more villas and horrible new-laid roads, and last of all, very shyly and very slowly, with a gradual diminution of the apologetic sale-boards, unrural fences, mutilated hedges, and general sense of town oppression, you are welcomed by that fair and desirable thing, the country.

Now I am bold enough to ask whether this perfectly horrible state of things need be.

I am aware that absolute contiguity between pure country and genuine city is almost impossible. If King Street, for example, were to end abruptly in the kind of landscape in which people hunt foxes and shoot partridges, both elements, the rural and the urban, would suffer from the contact simply because the town folk wouldn't and couldn't put up with the country roads, and the green fields and hedges wouldn't survive the friction, if I may so put it, of the citizens. In other words, a town of a certain density of population necessarily defies and defiles the immediate proximity of the country. I fear that one must acknowledge this in spite of the remarkable success with which the virginity of Epping Forest is preserved in the near neighbourhood of London.

But I do believe that we might, if we would, get rid of that painful decrescendo, that descending scale of graduated cheerlessness which at present encircles most of our towns, and I believe that the desired result can be obtained in connection with the circuit roads which town-planners are now beginning to look upon as a necessary element in the remodelling of our large cities. I am not wishing to claim originality for this idea, for I know that a girdle of green is a favourite scheme of many of the town-planning experts, and I believe that the bold intentions of Liverpool contain elements of this nature. But I should like to suggest that in towns of great magnitude, such as London, that girdle of green might be brought nearer the centre than the present

circumference of the town. Practical politicians—such as the writers of the latest report of the Traffic Branch of the Board of Trade—admit that it is necessary to form a circuit road round a considerable portion of London at a distance no greater than five or six miles from the centre. I would urge that this circuit road should be completed so as to form an entire, if somewhat irregular circle. I would advocate such an arrangement of its course as would bring it into touch with all parks and open spaces already existing within reach, and, to complete the scheme, I would go one step further. It will be realised that the district through which such a road as this passes, might, if its course were judiciously chosen, consist very largely of the class of property which, socially, is at its lowest ebb.

It might, if its proximity to the centre were rather closer than that proposed by the Board of Trade, lie outside the suburb which has exchanged its residential decadence for commercial importance and inside the district of the better class suburb. It ought not, therefore, to be very difficult to devote a good portion of this property to rural development. The land might still have a financial value, for it is more than possible that an enactment restricting the number of houses per acre might lead to the formation of a rural suburb of greater worth than the existing inferior house property. I would not go the length of suggesting that all the land included in the belt of green should be park open to the public—though some would prefer that consummation—but consider that the desired end might be obtained by the mere insistence on the

presence of trees and grass, and the comparative paucity of houses within the prescribed area.

I quite realise that outside and beyond this sacred grove the process of graduated squalor might possibly recommence, but I have faith in the notion that if London were once girdled in with a cheerful and definite garden four or five hundred yards in width, the amenities of street architecture and street life would be maintained up to that limit. The enterprise which keeps a town healthy and bright and gay would not suffer a gradual despair on its outward course, if it could feel that it had on this circumference a region of attractive and residential importance rather than a gradual collapse into the wilderness.

Let me briefly summarise the foregoing conclusions:

The word town-planning at least implies a certain aim, can it be said also to imply a definite and scientific method? History and facts seem to answer No. For though one may argue that as the building of a house requires the forethought of an architect, so, but in a much greater degree, does a city demand a designer. Yet experience shows first that towns tend, whatever their originator or their guardians may prescribe, to take matters into their own hands, secondly that with the utmost forethought no man can plan a large town *ab initio*, nor can even a large section of a town be replanned with the certainty of acceptance by posterity; and thirdly that large towns are always changing the units of their formation, old houses give way to new, and one district gives way socially to another.

Are we then to conclude that town-planning is merely a

useless aspiration, and that its systems, if it has any, are so uncertain of general application as to be nugatory? Not so. For, to take an analogy from another craft, the system of man patching, which we call medicine, is justified by the dire necessity which says man must be healed or he dies. Similarly the study of ideal perfection in towns so far from being merely visionary, or positively mischievous is actually needful. For crises occur in the life of towns when action must be taken, decisive and costly action. At such times the town's adviser, though he knows that his scheme of perfection may become imperfection to his grandsons, must act upon that scheme, for it is his best, and there is at least a chance that it may have in it the elements of permanent beauty and permanent worth. Put in another way it may be said that the town planner is playing a game of which the rules may in three or four generations be completely changed—but in order to make a move in that game at all, and move he must, he should at least know the rules as they are in his day. Again a city must not on account of its slow growth and many designers be denied that title to artistic worth which we allow to a cathedral that has taken four centuries in building.

One of the main duties of the town planner in an old city is to make sure that no disrespect is done to anything which is old and beautiful or historic. And this avoidance of disrespect means, not merely preservation, but such an arrangement of the new surroundings as will insure that these treasures of the past may look their best and may seem at home in their surroundings.

Two simple and obvious opportunities for the town planner's skill are the removal or alleviation of traffic difficulties and the provision of open spaces.

In the first of these exercises he must always beware of assuming that the problem set before him is the proper subject for his attack. Frequently, a mere symptom is mistaken for the disease, and it is by no means certain that a corporation's idea of its own needs is correct. Moreover, road making and road mending can never in a valuable city be considered as a mere engineering process apart from questions of beauty or questions of historic and archæological interest. Most roads are of more financial value than many houses, and there is at least as good reason for affording architectural—shall I say artistic—advice in half-a-mile of road as in a thousand pound villa. Yet a man on an income of four hundred a year will engage an architect for his week-end cottage, while a corporation with millions at its disposal would, until recent years, laugh at the idea of taking an artist's advice on a new street.

There are many ways of obviating traffic congestion among which road-widening, always costly, is not always the best.

In the provision of open spaces, heed should be given to the possibilities connected with the modern idea of circuit roads. Such roads may easily be planned in most cities in such a course, as to combine with the required avenue a broad girdle of almost rural woodland and meadow which would go far to mitigate the unpleasant relapse through gradations of ugliness, which forms the outer ring of most English towns.

In conclusion, six axioms on old towns and new needs.

Nothing in town-planning is impossible. I temper this by the single observation that there are some gradients which neither horse or motor can climb.

To leave alone is best—to do great things is noble, to do little things is wasteful.

Nothing is too expensive; it will be more expensive to-morrow.

A hundred guineas spent on advice are better than ten thousand pounds laid out in error.

Ugliness is the most expensive luxury.

Beauty is the cheapest of necessities.

The Town Extension Plan

The Town Extension Plan

By Raymond Unwin, F.R.I.B.A.

There is only one way by which we may be compensated in this country for delaying until now to undertake the proper arrangement of our towns, namely to profit by the experience that has been gained in other countries, and so to avoid their mistakes and improve upon their successes. If we are to do this, we must not only study what other countries have done, but we must base our estimate of the results of what we may propose upon a study of our towns, and that study must be sufficiently thorough to enable us to distinguish between accidental effects, due to some custom which may be modified, and essential effects dependent on economic laws.

I do not mean that our customs, our land tenure, or the particular form in which we raise our revenue, for example, are not important factors; but, that town-planning must as far as possible be based on the essential facts; for economic laws have a wonderful way of asserting themselves in spite of accidental customs. If it were not so, building and town development must have been brought to a standstill long ago by our custom of raising nearly the whole of the revenue for local administration by means of rates, which are virtually a tax on the rent of buildings. We are

accustomed to hear alarmist cries whenever it is proposed to raise a small amount of revenue from some particular class of property, whether it be a threatened 2s. duty on the miller's corn or a ½d. tax on undeveloped land values; but if such taxes could ruin an industry, what are we to say of rates? By rates we raise in England and Wales sixty-four million pounds per annum, and the tax amounts on the average to 6s. 2¾d. in the pound. Even the income tax which is assessed on the whole of the tax-payer's income, irrespective of the class of property, only amounts to about £37,000,000 for the United Kingdom. We are therefore raising in rates from one particular class of property in England and Wales nearly double the amount that we raise by the income tax. If really disastrous effects follow from taxes upon one or other particular class of property, I think you will admit that it is rather wonderful that any of us have houses to live in or factories to work in. I believe that this particular method of raising local revenue does add to the difficulty of adequately housing the people and accommodating their industries in suitable buildings; but the essential fact after all is that the public have to pay for local administration as well as for national administration; and that, though one way may be better than another way, other things will to a large extent accommodate themselves to the particular method adopted. There can be no doubt, for example, that if we abolished rates, and put the whole of the local government taxes upon ground rents, though the tenant might not have to pay for his house quite as much in additional ground rent as he saved in rates, and though for

a time many owners of ground rents would be hard hit by the change, still the land-owners would in the long run be able to transfer much of that tax back again upon the tenants in the form of increased ground rent.

Let us consider what are the essentials in connection with town development, and in what way the town's growth may be assisted by a proper Extension Plan. If we were planning a new town the matter would be less complicated; we could begin from first principles; but in ninety-nine cases out of a hundred what we are called upon to do is to make a plan to provide for the extension of an existing town. Therefore, the town-planner must first be sure that he thoroughly understands the life and needs of the community for whose extension he has to provide: hence, the study of the existing town can hardly be too thorough if the best results are to be attained. Here we may learn something from other countries, notably from Germany, where town-planning has been practised for many years: we may see the grave mistakes that have been made in some of their early town plans for want of this careful study of the existing town and its economic circumstances. That this is now thoroughly appreciated is proved by the wonderful study which has been made of the town of Düsseldorf, and the careful series of plans which have been prepared, embodying the results of this great civic survey, for the purpose of conveying the information in an easily grasped form to town-planners, who have been asked by the municipality of that city to enter a great competition for the preparation of a new Extension Plan for Düsseldorf.

It is only necessary to study their diagrams to realise the thoroughness with which this work has been done. The city of Düsseldorf began seriously to plan for its extension in 1888, and has therefore had some twenty-four years experience of this work. As a result of previous extravagance in the width and number of roads, the cost of the development of land has so increased that it is becoming less and less possible to build self-contained houses within the city for people of moderate means; and there has resulted a tendency for the people to be crowded into huge blocks of tenement and flat dwellings. This tendency has not gone nearly so far in Düsseldorf as it has in other German towns, Berlin for example; but the citizens are anxious now to check the tendency, and hence the care devoted to the subject in the survey. It is very remarkable that our country, which has for a century and a half watched the wonderful economies and the great progress which have resulted from the application of proper organisation and foresight to the carrying on of great industrial concerns, is only now beginning to realise that there may be some need to apply similar principles of foresight and organisation to the development of our great industrial centres, our towns and cities. It is difficult to see how we can have imagined in the past that it was safe to leave our towns to grow haphazard, the owner of each bit of land not only free to develop it just as he liked, without any central control, but even powerless if he wished to effect anything outside his own immediate boundary. What wonder that a hopeless jumble has resulted? But for the few old

country highways leading into the town, matters would have been ten times worse; as it is, except where such highways have saved the situation, it is usually impossible to get a direct route within our towns from anywhere to anywhere. No provision whatever has been made for expansion; roads that must obviously at an early date need to be widened to accommodate growing traffic, have been allowed to be lined on each side with property built close up to the road. Railways have been allowed to hem in the town without any effort having been made to forecast its development and provide for the necessary bridges and other requirements for expansion, thus throttling the town and its traffic in many directions. Cottage property has been allowed to spring up along the margins of railways and canals. Factories and workshops have been dotted about wherever a bit of land could be obtained for the purpose, often dumped down to the ruin of some good residential district, and always so scattered as to involve much needless carting to and fro of the materials of industry, adding greatly to the cost of production, to the congestion of traffic, and to the expense of street-making, widening, and maintenance, thus directly crippling the efficiency of the industry, and by destroying the amenities of the homes of those engaged upon the industry, indirectly crippling this efficiency still further. Not only is the industrial life of the community hampered; but the cost of administration is increased; and the development of the town is restricted. This leads to the congestion of buildings upon the ground, to the creation of slums, the destruction alike of the health,

comfort, and happiness of the people, and to the enormous increase of their death-rate. It is impossible to estimate the increase in expense of administration; but I am told that in your city on three separate occasions since the year 1833 has it been necessary to widen some part of Cross Street to provide for increased traffic; and that the value of the land which has had to be purchased for this purpose has risen from the date of the first of these widenings to the present time by 1,300 per cent.: that is, the amount of widening which at that time would have cost £1,000 must now cost £13,000. This sort of thing has been going on in nearly all our growing towns for want of the Town Extension Plan; and most of this confusion and loss to the community can be avoided by such a plan.

It is true that you cannot foresee exactly what the development of a town will be; that you may possibly provide for a wider street than will be required; that you may reserve an open space for a park on a site where as it turns out only a sparse population will settle; that, on the other hand, you may not reserve quite enough open space, enough sites for schools, police, fire, and other administrative buildings, in other parts where the population becomes denser than was foreseen. But put these errors of judgment at their very worst and compare them with what happens now. Is the town likely to suffer severely in pocket or in any other way from having bought up a little open space, beyond what is actually necessary, at slightly more than agricultural value; or for having made a road a little wider than actual requirements, at a time when the

land probably cost little or nothing and was free from buildings? At any rate, compare this with the way in which the public now has to pay for every site for a school or other building it requires, for every strip of road widening, for every scrap of open space, play ground or park, just because it does not look ahead and provide for development, but waits until the ground is covered with buildings and has reached almost its maximum value before it makes these provisions. The town plan will not only provide for future extension, but, by the very fact of doing so, will control and guide development along just those lines which will fall in with this provision ; and, therefore, it is really possible by the combination of such reasonable foresight as a town plan can embody, with such control and guidance as those enforcing it will exercise, to adjust the provision to the future needs with a very fair degree of accuracy.

A town plan can assist industry by reserving definite areas for industrial purposes, by arranging for the provision adjacent to these areas, of all the required facilities, such as railway carriage, water carriage, ample siding accommodation, space for needful warehouses, bonded stores, etc., and finally by securing, within easy access, adequate areas upon which those engaged in the industries can live under circumstances which will make for health, amenity, and the greatest efficiency. This is being secured by the city plan in many places, some examples of which I will show you shortly, but before doing so, let me ask you to consider what the city of Manchester might have been if its development had been carefully planned and guided by an enlightened Local

Authority since the year 1795, when, as the City Surveyor, Mr. Mead, recently described it, "the open country was within a few minutes' walk from any part of the town. The inhabitants had the green fields and rural lanes of Hulme, Strangeways, and Ancoats almost at their doors," and, as you will see from a map of the period, kindly lent by Mr. Mead, Manchester consisted of a little town lying between the Cathedral and the present Town Hall; there were hardly any buildings North and West of the Cathedral, and the town had not at any point reached the river Medlock. If at that time a plan for the growth of the city had been laid down, preserving some of the beautiful valleys along the water courses as permanent open spaces, providing for main radial roads leading out in different directions and allotting definite areas for manufacturing purposes, what a different place Manchester might now have been! Even the fine, straight Deansgate which figures on the old plan has not been carried forward, and anyone wanting to travel further in that direction must dodge about round corners and up side streets before he can again reach anything like a through road. Since that date Manchester has grown almost beyond recognition. The different periods of the enlargement of its boundaries are shown by the different colours and dates on the slide. Very much has been done, of course, to improve Manchester both before and since the able survey of the city conditions made by the Citizens Association in 1904. From their plan the enormous growth which has taken place may be judged, and the haphazard development of the streets and the overcrowding of

buildings which has been permitted is only too evident. By a very efficient and complete system of tramways following such direct routes as are available, much has been done to relieve the pressure of population in the centre of the town, and to make it possible for a large proportion of the inhabitants to live nearer the fresh air and green fields outside; but the want of good highways has hampered this development; and you will see that there are still large areas within the city boundaries not served by this means of locomotion, and not properly accessible by any suitable roads from the centre of the town. Our municipalities have only just been given Town Planning powers. In many cases, as in Manchester, they have done much without those powers. We are to-night considering what further can be done by the aid of Town Planning. We will take as our first example the town of Frankfort, situated on a tributary of the Rhine, 500 miles from the sea. Owing to the foresight of the German nation in providing for the maintenance of a navigable condition, and of the towns adjacent to the river in providing adequate connection with the industrial quarters and sufficient dock and harbour space, the Rhine is becoming the most important traffic highway in the country. Frankfort has recently laid out and is constructing on the east side of the town something like seven miles of additional wharf space for the loading and unloading of barges; it has set aside an enormous area of ground provided with siding accommodation, giving connection alike with the railways and the wharves, with other conveniences both for warehousing and manufacturing

purposes. It has provided immediately adjacent to this area a splendid park, containing playing fields, boating lake, pavilions, and many acres of beautifully-planted pleasure ground; and, immediately on the other side of this belt of park, a large area has been laid out, upon which are to be built the necessary homes for those who will be employed in connection with those docks and industries. You find the same thing on perhaps a smaller scale being carried out at Cologne, Düsseldorf and many other towns. The interesting little town of Crefeld situated a few miles from the Rhine has extended its boundaries to include a small piece of the Rhine bank, has laid out railways and wide roads connecting with large harbours and docks which it has made adjacent to the Rhine, has planned a detached Garden City, adjacent to the docks, and is becoming a growing and thriving industrial town instead of being left in the backwater of development.

This shows how largely a town may control its own destiny by means of its City Plan. Take the town of Cologne as another example. In 1880 it was practically a mediæval town, consisting of narrow and irregular streets hemmed in within the lines of fortifications. By an Extension Plan it secured that when the fortifications were abolished, a wide avenue or Ring Strasse surrounding the town should be created, and that the whole of the land lying between the old fortifications and the new line of entrenchments outside should be laid out in an orderly and convenient manner, giving the best possible communication from place to place and providing for an adequate number both of

radial streets of good width leading out into the country in all directions and of cross roads linking these together; and providing, in addition, parks, open spaces and play grounds, not only in this belt but to a greater extent in different directions far outside this belt. Here also adequate harbours were provided and areas set aside on the East of the town, away from the prevailing winds, for the development of factories and industries of all kinds. Outside they have reserved sites for public buildings, schools, etc. and by grouping these in suitable connection with the parks, open spaces, radial roads, railway stations, and other matters provided for, they have been able practically to control the development, because, by grouping all these conveniences at certain points, they can provide that those points shall be the most attractive for residents to settle around. It is true they have made mistakes, but not the mistakes of buying land in the wrong places or omitting to arrange for development at points where it has taken place. They have actually constructed roads in some cases too far ahead of development and have planned out the areas in too great detail, making all the roads too wide. The German cities have power to take from the owner the land necessary for roads up to a maximum proportion which varies in different places from 30 per cent. to 40 per cent. of the total area of a man's land ; but the owner has been able to throw the cost of this land and of the making of these roads upon the community, by charging such high prices for the remaining land as to recoup himself ; thus we see that mistakes or needless extravagance in the kind of development must be

borne by the community in one way or another, whoever in the first instance provides the land and money. It is therefore equally to the interest of the owner and the public to ensure the best type of development. Let us contrast the growth of Cologne with what has taken place in Chicago where a town of two million people has been developed at such a rapid rate that some still living can remember when there was only a settlement of a few hundred people there. This town has grown on a simple gridiron plan, if such can rightly be called a plan, dividing up the land into rectangular building blocks, of much the same size whether the land is wanted for factories or shops, palaces or cottages. At first no provision was made for open spaces, main wide roads were not then thought of, and the result has been perhaps the greatest aggregation of disorganised units of population that have ever been brought together. Chicago, which contains within itself a wonderful amount of public spirit backed by true American energy, is now seeking at enormous cost to rectify these mistakes and has indeed done great things already. It has secured a number of fine parks, and recovered and preserved long stretches of lake front; it has made and planted miles of magnificent boulevards and avenues, "park ways" as they are called in America. You may ride in a motor hour after hour round Chicago and the whole of the time be travelling along its park-ways and through the parks and hardly leave them. This Green Girdle is indeed, a wonderful creation. They have, too, bought here and there one or more of these building blocks, and have laid them out as playgrounds for the children. Unfor-

tunately in the past, they have allowed the building blocks to be so covered with building that there is not enough space for air or light to reach to the rooms, much less for any garden space in which the children could play. They have now set themselves the task of providing a play ground of some sort within half a mile of every child's home in the city. Perhaps the most interesting point about these play-grounds is that they are becoming local civic centres; they are beginning to provide for Chicago that grouping and organisation of its mass of humanity which hitherto it has wanted. In connection with these play grounds a large building called "a field house" is usually built, containing Gymnasia, Refreshment Rooms, Reading Rooms, Baths and Swimming Baths, a Concert and Dance Hall and different rooms for the use of Trade Unions, Friendly Societies, and other similar bodies requiring a meeting place. The "field house" with the numerous activities centred there, is becoming the focus of the neighbourhood in which it exists; and the amorphous mass of humanity around it is beginning to take on a definite relation to the centre, is beginning to group itself, as particles of a chemical solution group themselves into a beautiful crystalline form about some central point of attraction.

This brings us to consider what is the sociological reason which impels men to come together in villages, towns, or great cities. Is it not largely the fact, well expressed recently by an American, that 10 people working together can do more than 15 people working separately, that 100 working together can do more than 1,000 working separately,

and that there is no limit to what a million people working together can accomplish? But there is this vital distinction between a small group and the large town: in the small group there is an intimate personal touch and personal understanding between all the different members of the community, whereas the larger the community becomes, the more attenuated must be the amount of personal contact, until, at quite an early stage, the members must cease even to recognise one another at sight. Now in all large associations a definite scheme of organisation is introduced to meet this difficulty. Groups of individuals, large enough to become definite centres of influence, but not too large to permit a considerable degree of personal intercourse between the members, are formed. These groups, for purposes affecting the district, appoint representatives to put forward the group point of view at district meetings, and these district meetings again, if necessary, appoint a National Council to represent the whole movement, whatever it may be. In this way the whole movement is kept in touch, and its power can be focused upon any object. You have a similar type of organisation in the army, where the soldiers are grouped in companies of 100 with their immediate officers through whom they are kept in proper relation with the other companies in the regiment. The group of companies forming the regiment again have their regimental officers through whom they are kept in proper relation with the general officer commanding the division; the generals of division are in immediate contact with the commander-in-chief and his staff; and so the whole force of the army, the

force, that is, not only of the material weapons of war, but of the more essential spirit of bravery, can be concentrated upon any purpose by the general, in a manner that would be quite impossible if the whole army consisted of individuals each having an infinitesimal direct connection with the general. Our towns in the past have tended too much to resemble this latter unorganised condition, and it is largely to this fact that we owe the squalor, ugliness and haphazard character of their development; for there is no doubt that the town must represent the character of the social life of the people composing it, and that it will express by its form the social organisation upon which it is based. I venture to suggest that the ideal form of town to which we should aim will consist of a central nucleus, surrounded by suburbs each grouped around some subsidiary centre representing the common suburban life of the district; and the suburb in turn will consist of groups of dwellings, workshops, and what not, developing some co-operative activity either in connection with the building and owning of the houses, or in connection with the common enjoyment of open spaces, playing fields, and so forth. To emphasise this ideal development of the town, first of all each individual suburb should be provided with its suitable centre around which should be located its local municipal or administrative buildings, its places of worship, its educational, recreational, and social institutions; and not only should this centre or heart of each district give expression to its unity, leading naturally to the grouping of the district around and in relation to this centre, but between

each of these suburbs there might well be reserved some belt of open space, park land, wood land, agricultural, or meadow land, which would at once define one suburb from another, and keep the whole of the inhabitants in intimate touch with ample open space.

This form of city organization, Mr. Howard's Garden City idea applied to town development, would simplify all the problems of town planning, and the provision of the many services, water, telephone, light, etc., associated with modern town life. Everything would be taken direct to each centre and thence distributed to the individuals grouped round that centre. Reservation of the necessary sites for schools, playgrounds, and other public requirements would become easy; and the very fact that these were located beforehand in the places best adapted for them, and at the focus of the various roads forming part of the scheme, would lead to the natural development of the suburb around this centre. Moreover, the low-lying meadows and valleys following the rivers and watercourses, just the part of the land which is least healthy for building purposes, and the most expensive to provide with sewers, would be most suitable to preserve as open spaces, playgrounds, and pleasure walks which often need not be wide in extent; and so naturally the dwelling suburbs would be located on the high and healthy grounds. The tops of the higher hills to which water cannot often without special expense be supplied could again be reserved as open tracts of country for common enjoyment. It would be natural to group the factories and railways in conjunction with the

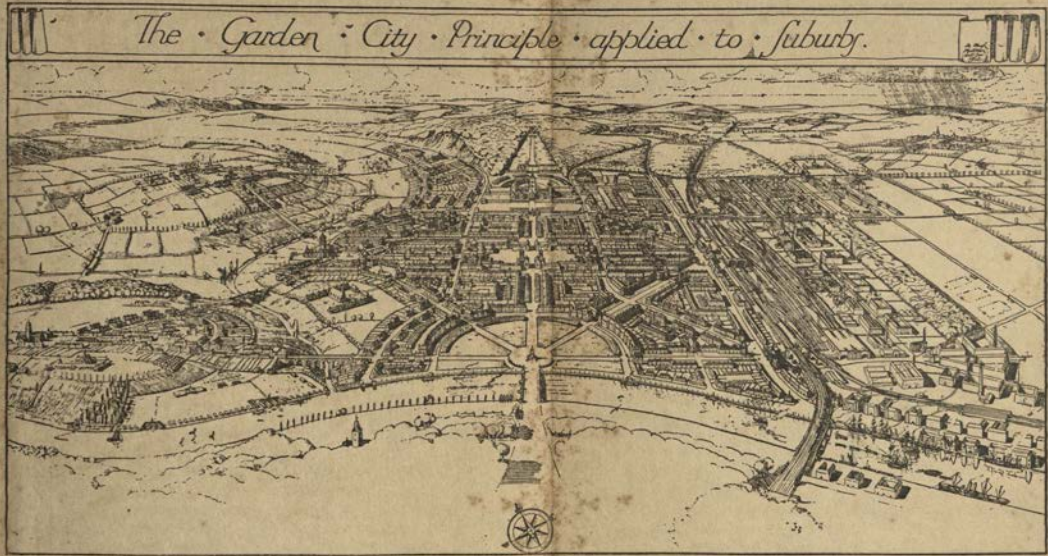

FIG. 5.—Diagram illustrating a town developed on a definite plan, with factories on the east, its administrative buildings grouped round a central square, other sites reserved for public buildings, etc. Belts of open space are reserved in the valleys and upon the hill top, while suburbs, separated from the main town by these belts of open space are shown to be growing up around their own subsidiary centres in various directions adjacent to the town. The river frontage is devoted to industrial and commercial uses to the east, and is preserved for recreational enjoyment along the remainder of its course.

canals and rivers where they exist, placing them, if possible, on the east of the town so that the prevailing wind would carry away such smoke, noise, and smell as improved methods of production may still leave as necessary accompaniments of a manufacturing area. Such an industrial district would be intimately connected by direct highways, provided with suitable means of locomotion, with the different residential suburbs; and in close proximity to the factory area there would be provided accommodation for those who must needs live very near their work, a belt of open space sufficient to secure the amenities of the area, being, however, preserved between the two. In the heart of the town would be the main public buildings, surrounding a central square, or otherwise grouped to produce a dignified civic centre, and including the cathedral or whatever other building may in the future most suitably represent the spiritual aspirations of the community. But I must not discuss the civic centre to-day. We are dealing with the town extension plan, and it is perhaps time to leave the consideration of the ideal town extension and see how far Mr. Burns' Town Planning Act will enable us to approach this ideal. We shall find that is further than at first we think, and that the obstacles, based on real economic difficulties, are less than at first they seem.

The definite powers given by the Act are not many, but they are far reaching. The community is empowered, through its municipal council, to make a plan laying down the lines upon which all land surrounding it, not yet built upon and likely in the future to be built upon,

shall be developed. Such plan may define the direction, position, and width of roads. The scheme which accompanies the plan may provide for the making of any of these roads that are urgently required for the public need. Any by-laws or other statutory enactments may be varied by the town planning scheme so far as may be necessary to its proper execution, with a view to securing proper sanitary conditions, amenity and convenience. The scheme may make restrictions on the number of buildings which may be erected on each acre of ground and the height and character of these, and may prescribe the space about buildings. Finally, land may be purchased for open spaces or other purposes in connection with the Town Planning scheme. If these powers are considered carefully, it will be found that there is little of what I have been sketching as the ideal development of a growing town, which cannot be secured under one or other of these headings. One of the special functions of the Act is to empower the local authority to make agreements with the owners of land on any subject bearing upon its development. The local authority is put in a favourable position for making such agreements, because it has not only power to restrict within certain limits the use to which the owner may put his land, but it has the power very greatly to facilitate development by the suitable laying out of roads, by prohibiting objectionable buildings on adjacent property, and by modifying many existing restrictive by-laws which have been made to suit other conditions of development.

I am glad to know that in Manchester already considerable progress has been made with these negotiations, that

your energetic Town Planning Committee, aided by their tactful surveyor have already established a good understanding with many of the chief owners of property, and that these owners realise that it is in the common interest of all that the land should be developed on right lines. It is for you as citizens loyally to support the action of your representatives, and to give them hearty and enlightened encouragement to carry forward town-planning schemes for the area around Manchester, to a degree which will secure for you the utmost benefits which it is possible to obtain under the present Town Planning Act; and when we have exhausted these we will go to Mr. Burns and ask for more! It is, alas, true that a vast area in Manchester has been ruined by the want of any proper co-operation in development, by the selfish and short-sighted overcrowding of dwellings upon some areas of land and the waste of others. But we must not think that it is too late now to move; that is not so: Manchester is still growing rapidly. There is around it much country which would lend itself to more successful development. It is evident from what has already been accomplished that your surveyor will be able to secure many roads leading out of Manchester in different directions. The next point of vital interest is that we shall secure proper homes for the people. Until town planning has done this, until the people of a city have homes fit to inhabit, in surroundings which will provide health, comfort and beauty, it is too soon to consider ambitious schemes for remodelling the central area of the town. Let us once secure a well-housed city, and well-housed citizens will

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soon see that their civic centre is worthy of them. Now what is it that stands in the way of this proper housing? It is nothing but the idea that it is necessary for the benefit of some person or some class that the maximum number of houses possible shall be crowded upon every acre of land. If this is not done, we are told that building will not pay. It seems so obvious that the more houses you put upon an acre of land, the more economical use are you making of the land that few consider the question further; and, if you asked people generally what would be the effect of halving the number of houses allowed to be built on any acre of ground, they would tell you that you would ruin the builder, and divide the landowners' returns by two.

Both builders and landowners have been very much disturbed by the powers given in the Town Planning Act to limit the number and character of the buildings which may be put upon each acre of ground; I think it can be shown that these fears are not justified, but on the contrary that the greater the number of houses crowded upon the land, the less economical is the use being made of it, the higher rate must the occupier pay for every available yard of his plot, and the smaller will be the total return to the owners of land in increment value due to building operations.

That we may have some definite figures let us compare two actual schemes of development, each covering 10 acres of ground. (Fig. 6.) No. 1 we will develop with approximately the maximum number of houses of a frontage of 16 feet each, which can be built to comply with the present Manchester By-laws. We will take the cost of the front roads to be

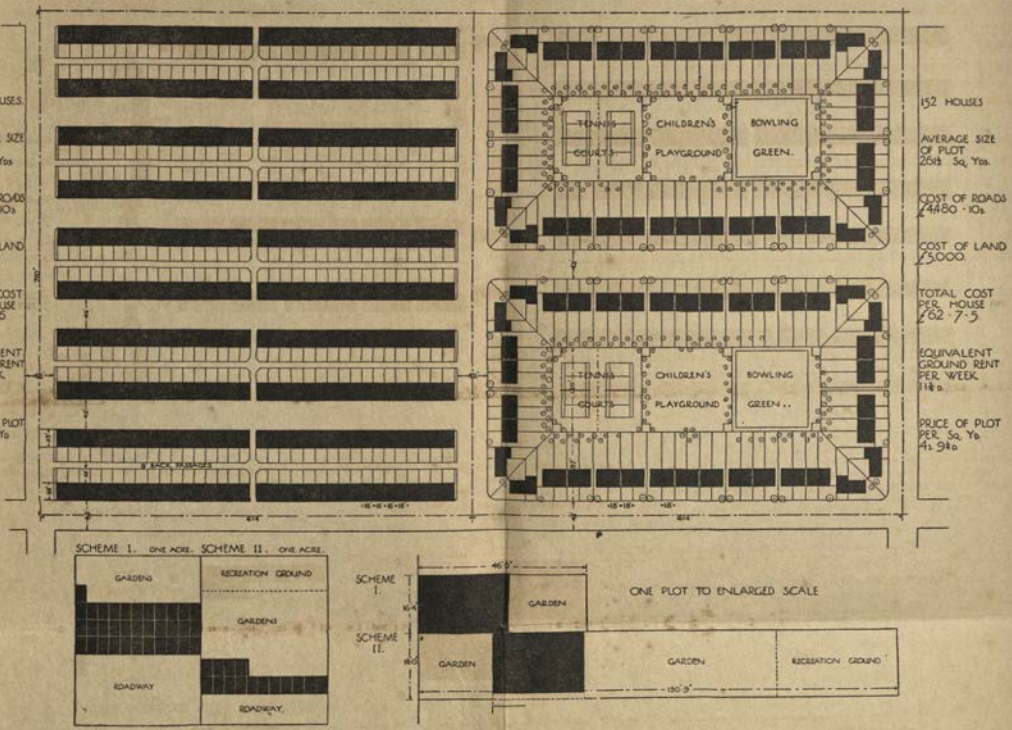
SCHEME I. 10 ACRES
SCHEME II. - 10 ACRES.
340 HOUSES.
AVERAGE SIZE OF PLOT 893 Sq. Yds.
COST OF ROADS £9747 · 10s.
COST OF LAND £5,000
TOTAL COST PER HOUSE £43 · 7·6
EQUIVALENT GROUND RENT PER WEEK 8d.
PRICE OF PLOT PER Sq. Yd 10s 4½d.
152 HOUSES
AVERAGE SIZE OF PLOT 2614 Sq. Yds.
COST OF ROADS £4480 · 10s.
COST OF LAND £5,000
TOTAL COST PER HOUSE £62 · 7·5
EQUIVALENT GROUND RENT PER WEEK 11½d.
PRICE OF PLOT PER Sq. Yd 4s 9½d.
TENNIS COURTS
CHILDREN'S PLAYGROUND
BOWLING GREEN
SCHEME I. ONE ACRE.
SCHEME II. ONE ACRE.
GARDENS
RECREATION GROUND
ROADWAY
ONE PLOT TO ENLARGED SCALE
GARDEN

FIG. 6.—Diagram showing similar areas, each of 10 acres, developed with a larger or smaller number of houses to the acre, together with the cost of development. The land in both cases is assumed to be worth £500 per acre, apart from the cost of roads. The roads are taken as costing, by the time they are taken over by the local authorities, £7. 5s. per lineal yard. The back roads in Scheme I. are taken as costing £1 per lineal yard. In the lower part of the diagram the effect on each individual acre is illustrated, showing how rapidly the land available for garden ground for each house diminishes with the increasing numbers of houses and also, to a larger scale, the relative size of house and garden plot in each of the two schemes.

£7. 5s. 0d. per lineal yard, which I am informed is the cost of a Manchester by-law street, and we will allow £1 per lineal yard for the back roads. You will see from the diagram that on 10 acres we can put a total of 340 houses or 34 to the acre. We will take another 10 acres exactly in the same form and here we will reduce the number of houses to 152, i.e., 15·2 per acre. In this case we will not provide back roads but will spread out the houses along the frontage, building them in groups of 2, 4, or 6, and leaving adequate passage way between every two houses to give access to the back gardens. We will take the same cost per yard for the roads and we will assume in both cases that the land, before the roads are made, is worth £500 per acre. We have 10 acres in each case and our land therefore costs us in both cases £5,000; but notice, in Scheme No. 1, our roads cost us £9,747. 10s. 0d., while in Scheme No. 2 our roads only cost us £4,480. 10s. The total cost of land and roads in Scheme No. 1 is therefore £14,747. 10. 0., while in Scheme No. 2 it is only £9,480. 10s. 0d. Dividing that cost by the number of houses in each case we find that the plot in Scheme No. 1, which only measures 83½ square yards of available land for building and back yard, costs £43. 7. 6. or 10s. 4½d. per yard, while in Scheme No. 2 the plot which contains 261½ yards, more than three times the area, only costs £62. 7s. 5d. or 4s. 9¼d. per yard. That is, we find by reducing the number of houses by more than a half which has the result of increasing the size of our plot more than three times, we have only increased the weekly ground rent by 3¾d. In Scheme No. 1, 8d. per week must be paid for the small plot,

in Scheme No. 2, only 11¾d. need be paid for the large plot, which may either be given entirely to individual gardens, or part of which as shown in the diagram may be devoted to the purpose of providing common playgrounds for the children, tennis courts and bowling greens for the elders, drying grounds, and allotments, or to any other purpose for which land may be used. Now I ask you, if there were two shops and one of them offered 83 marbles for 8d. and the other offered 261 marbles for 11¾d., would not the youngest player know which is the best offer? But this is not all. In scheme No. 2, we are paying for the land the same price as in scheme No. 1; but, for every year the town continues to grow, we shall want more than double the area of land if we work on scheme No. 2. Let us see how this will affect the increment. I find that in Manchester during the last 10 years on an average 17,000 people have been added to the population in each year. If we allow 5 people to the house, it follows that 3,400 houses have to be built every year; and if we take 34 houses to the acre, the number in Scheme No. 1, we find that every year to satisfy the requirements for new houses only, 100 acres of land must be developed and built upon. This I think you will agree, means practically that 100 acres of land must be transferred from agricultural value to building value. If we take £50 an acre for the sake of argument as the agricultural value of the land outside the town, and £500 as the value for building purposes within the building zone, as in the figures I have given you above, you will see that the owners of land around Manchester may, under present circumstances, expect a total increment of value from the building of houses equivalent to :—

100 acres at £500 = £50,000
Less 100 acres at the agricultural value of £50 = 5,000

Total increment = £45,000

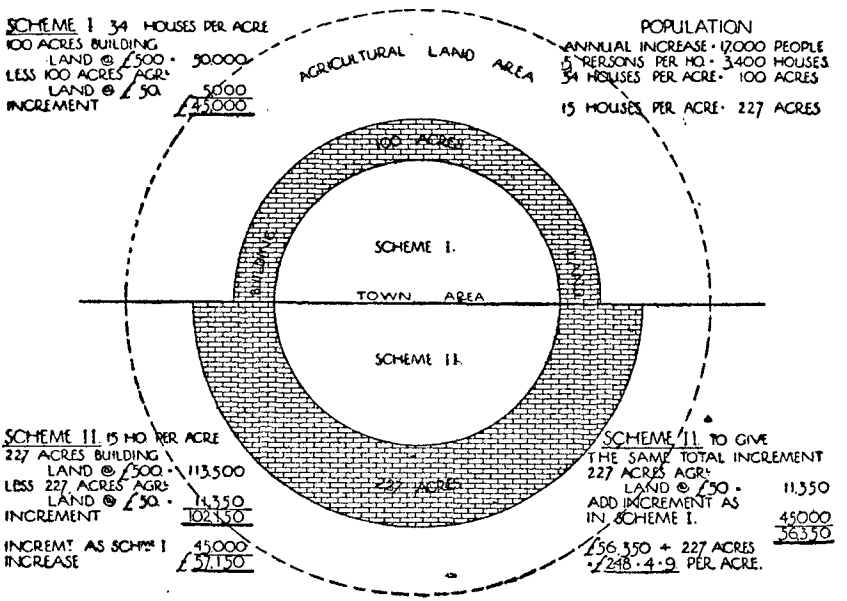
SCHEME I 34 HOUSES PER ACRE
100 ACRES BUILDING LAND @ £500 · 50000
LESS 100 ACRES AGR¹ LAND @ £50 5000
INCREMENT £45000
AGRICULTURAL LAND AREA
POPULATION
ANNUAL INCREASE · 17000 PEOPLE
5 PERSONS PER HO · 3400 HOUSES
34 HOUSES PER ACRE · 100 ACRES
15 HOUSES PER ACRE · 227 ACRES
100 ACRES
SCHEME I.
TOWN AREA
SCHEME II.
227 ACRES
SCHEME II 15 HO PER ACRE
227 ACRES BUILDING LAND @ £500 · 113500
LESS 227 ACRES AGR¹ LAND @ £50 · 11350
INCREMENT 102150
INCREMT AS SCHᵉ I 45000
INCREASE £57150
SCHEME II TO GIVE THE SAME TOTAL INCREMENT
227 ACRES AGR¹ LAND @ £50 · 11350
ADD INCREMENT AS IN SCHEME I. 45000
36350
£36350 ÷ 227 ACRES
£248·4·9 PER ACRE.

FIG. 7.—Diagram illustrating the increased area of land required for building purposes if the whole of the population, in a town having an annual increase of 17,000 people, were provided for, in the upper half at the rate of 34 houses per acre as in Scheme I., in the lower half at the rate of 15 houses per acre approximately as in Scheme II. The figures show the increased increment of land values and the possible reduction in the price of land which might result therefrom.

Now let us see what would be the result if the whole of the building ground around Manchester were developed in

accordance with our No. 2 scheme instead of our No 1, and we can take for our purpose the even figure of 15 houses to the acre as representing our No. 2 scheme. We find then that to supply 34,000 houses, instead of 100 acres we shall need 227 acres and in this way, the account for increment will work out as follows :—

227 acres at £500	=	£113,500
Less 227 acres of agricultural land at £50	=	11,350
Total Increment	=	£102,150
Increment as ... scheme 1	=	£45,000
Increased increment	=	£57,150

And yet the owners of land are afraid of Town Planning! Why the Town Planning Act may prove to be the handsomest gift this country has made to its land-owners for a very long time! I do not suppose, however, that the economic effect of limiting the number of houses to the acre will be to benefit the owners of land to this extent. I think it is probable that the reduction of the number of houses to the acre will be followed by some reduction in the price of land. But the figures show that even if there were no reduction in the price of land the tenant would be infinitely better off paying 11¾d, for a good big plot than he is at present paying 8d. for a little plot, always assuming that

he does only pay 8d. for that little plot. When I said that the overcrowding of land is uneconomical and unprofitable to the owners of land as a whole, I did not say that nobody made profit out of it. What really happens is that the land speculator develops the land on the lines laid out in scheme No. 1, but instead of letting it at 8d. per week per plot, he lets it at 9d. or 10d. per week per plot, and the greater the number of houses, the greater the number of pennies and twopences per week which falls to his share of profit. But, assuming that we always get our plots after paying the landlord for the land at the nett cost price of the plot, then I say, even so, the tenant would be better off paying 11¾d. for the big plot shown in scheme No. 2 than paying 8d. for the little plot shown in scheme No. 1. But supposing that the economic conditions should work out in the opposite extreme and that the owners of land as a body only receive under the new system to be brought in by Town Planning the same total increment that they would have received under the old overcrowding system: let us see what the result would be, again basing our calculations on the increase of Manchester.

With 15 houses to the acre we shall now absorb :

227 acres of agricultural land at £50 per acre = ...	£11,350 0 0
Add the same increment as before	45,000 0 0
The landlords must therefore receive	£56,350 0 0
£56,350 ÷ 227 acres = ...	£248 10 0 per acre

That is, that owing to the increased area of land required for building purposes by reducing the number of houses to the acre from 34 to 15, the owners of land as a whole would receive the same return in increment after allowing for the loss of agricultural value on a larger area, if the land were sold at £248, 8s. 0d. per acre instead of £500 as taken in our figures. If this value were substituted in our scheme 2 calculations, we should find that the ground rent per week would be reduced from 11¾d to 8½d. per week or only one halfpenny more than the cost under the old scheme.

This is not a picked example. I have tried it with dearer and cheaper land, with more costly roads and less costly ones, and though of course the exact relation varies, the general results come substantially to the same thing.

In other words, our over-crowding system of development is so absolutely uneconomical, it wastes so much of the land in roads, that actually it would be possible, giving the landlord the same total return in increment from every house that is built and paying exactly the same for the streets, to provide the plot of land of 261 square yards for 8½d. per week in place of a plot of 83 square yards which costs 8d. per week. If you compare the two diagrams illustrating the space occupied on every acre of ground by roads, by building, and by garden, in each case, you will see somewhat how this remarkable result comes about; how in the one case such a large proportion of the acre is occupied by roads, and you must remember that roads constitute the most expensive form of open space which it is possible to have, and the least satisfactory.

You will, I think, be able to see that not only is there no real economic difficulty in reducing the over-crowding of houses upon the land, but there is equally no economic difficulty in providing all the open space that is desirable, not only around the town, but within the town; because, even from the point of view of the owner of land, very much the same increment value arises from a given population whatever the exact arrangement of it; and if you reserve a belt of park, two or three hundred yards wide, between the town and the adjacent suburb, it simply means that you have extended the area of land which benefits by building increment as much farther out as is represented by the land which you have reserved unbuilt-upon nearer in.

One other objection to the wider distribution of the population may be raised, namely, that we shall so largely increase the size of our towns as to add very greatly to the problem of locomotion. Here again the difficulty is much less than at first sight appears, for we find on examining towns and comparing the average total population per acre with the population per acre in the congested districts, that, in many cases, it is not the average that is seriously wrong, but that there is acute local congestion. Town planning can provide for the better distribution of the population and the more economical use of land. Just as it will avoid overcrowding in some directions, it will avoid the useless waste of land which often takes place in other directions, because areas, otherwise available for dwellings, are ruined by adjacent factories, or because considerable areas are constantly being left without proper

facilities of access. Not only is this the case, but owing to the fact that the area of the circle increases much more rapidly than the diameter (in proportion to the square of the diameter in fact), as a town grows a constantly diminishing addition has to be made to its diameter to enable it to provide for a given increase of its population. Let me just put this in the form of figures for you, taking the increase of population that we have been already dealing with, and assuming that the whole of the dwellings under the present arrangement are built at 34 to the acre, which mercifully is not true. The present area of the borough of Manchester is 21,643 acres, but the area actually built upon is only 10,081 acres, that is 15¾ square miles, equivalent to a circle having a diameter of 4½ miles or a radius of 2¼ miles. I find that in Manchester supposing only half the circumference of the town is available for growth for one reason or another, 10 years development at the rate of 100 acres for dwellings per year, which we saw to be the required amount under scheme No. 1 of congested development, would increase this radius to 2½ miles. Under scheme No. 2 if, for the same ten years, we needed 227 acres per year, the radius would be increased to 2¾ miles. That is, the extreme distance to be travelled in one case would only be ¼ mile further after ten years of wholesome development, and the average distance would show considerably less increase. (Figs. 8 and 9.)

There is only one other aspect of this great question that I can touch upon to-night. We have been considering almost exclusively the practical utility and the economic

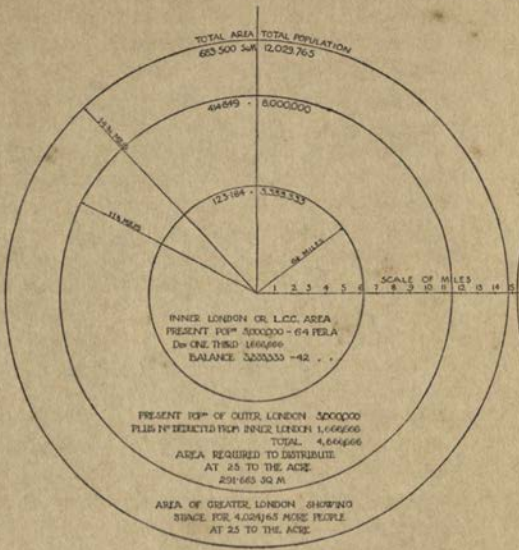
TOTAL AREA
693 500 SQ M
TOTAL POPULATION
12,023,765
414 849 - 8,000,000
123 164 - 1,333,333
SCALE OF MILES
INNER LONDON OR L.C.C. AREA
PRESENT POP^N 5,000,000 - 64 PER A
De ONE THIRD 1,666,666
BALANCE 3,333,333 -42 . .
PRESENT POP^N OF OUTER LONDON 5,000,000
PLUS N^o DEFLECTED FROM INNER LONDON 1,666,666
TOTAL 6,666,666
AREA REQUIRED TO DISTRIBUTE
AT 25 TO THE ACRE
291·665 SQ M
AREA OF GREATER LONDON SHOWING
SPACE FOR 4,024,765 MORE PEOPLE
AT 25 TO THE ACRE

FIG. 8.—Diagram showing how it would be possible to reduce the pressure of population in the centre of London by one-third its present inhabitants, and yet find accommodation at an average of only 25 people to the acre for over 12,000,000 people within the present area of greater London and within a radius of less than 15 miles from the centre.

FIG. 9.—Diagram illustrating how the population which can be accommodated in a town increases much more rapidly than the average distance of the dwellings from the centre of the town. In this diagram the whole of the population is assumed to average 25 people to the acre.

facility of regulating our town development on better lines than in the past; but the purpose of all this is to make of our towns dwelling places more fitting for a race of beings who do not live by bread alone, but who require also mental culture and an outlet for the expression of their spiritual aspirations. When you want to erect a new municipal building or a new cathedral, having settled the requirements, practical or hygienic, that the building must serve, you call in the artist to give form to the building, that it may express by its beauty something more, something which throughout the ages every race of man has felt to be necessary to the completion of his work; and so must it be in our city building. When sociologists and surveyors have settled the requirements, and economists and engineers have settled the possibilities, then we, as our forefathers did, must call in the man of imagination, the artist, to clothe these requirements in some beautiful form. The Greeks and Romans did this as you may see from the beautiful re-creation of Ephesus and others of their cities. The mediæval builders succeeded also, though on quite different lines, as is evident in Rothenburg, Nuremburg, or any city where mediæval remains to any extent exist. The town planners of the Renaissance in like manner gave order and beauty to their cities, and their works, as being nearer our own time, we should study with special care, such examples for instance as may be seen in Paris, Karlsruhe, Turin, or Copenhagen.

Your Manchester Society of Architects have already made sketches for a plan of a Manchester suburb which are

no doubt known to many of you, showing the breadth of treatment, the careful consideration of the grouping of the buildings and their placing on the ground which must form part of the final stages of town planning, if the town is to become once more a beautiful place to dwell in; and it is as necessary for mental and spiritual health that man should live in beautiful surroundings as it is for his bodily health that he should dwell under sanitary conditions. Town Planning, then, calls for a great co-operative effort to re-create in our cities worthy dwelling places for our social life. The individual must find his reward for sometimes sacrificing his immediate interests and predilections in the far wider opportunities which a co-ordinated development would afford, and above all, might I say here, he must learn to consume his own smoke literally and metaphorically. The engineer and the surveyor must be willing to co-operate with the artist, guiding him on sound and practical lines, but giving him the freest possible hand in dealing with the forms of expression; and the architect must cease to regard each building he erects as a unit in itself, of which he may make what he likes, and must learn to consider it as a detail in the greater street picture, and must accept as his first duty the subordination of that detail to a total effect of ordered beauty which the citizens must learn to require and appreciate, that each may in this way do his share towards the creation of a beautiful city

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